

REMARKS

This is a Response to the Office Action mailed March 24, 2008, in which a three (3) month Shortened Statutory Period for Response has been set, due to expire June 24, 2008. Forty-four (44) claims, including five (5) independent claims, were paid for in the application. Claim 1 has been amended. Claims 10-44 have been cancelled. No new matter has been added to the application. No fee for additional claims is due by way of this Amendment. The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090. Claims 1-9 are pending.

Election/Restrictions

In view of the Restriction Requirement and subsequent election, Applicants hereby cancel claims 10-44 without prejudice to pursuing the same or similar claims via the filing of one or more divisional, continuation, or continuation-in-part applications.

Objections

Claim 1 was objected to because of informalities which are corrected by the amendments above.

35 U.S.C. §102(b) Rejections

Claims 1-9 were rejected under 35 U.S.C. §102(b) as being anticipated by Fuglevand et al. (U.S. Patent No. 6,387,556, hereinafter "Fuglevand").

Applicants thank the Examiner for the clear and concise presentation of rejections in the Office Action. Applicants respectfully traverse such rejections for the reasons stated below, and ask for reconsideration of the pending claims in light of same.

Legal Standard For Anticipation (M.P.E.P. § 2131)

M.P.E.P. § 2131 states, *inter alia*, the following:

"A claim is anticipated only if *each and every element as set forth in the claim* is found, either expressly or inherently described, in a single prior art reference."

Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown ***in as complete detail as is contained in the ... claim.***" *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements ***must be arranged as required by the claim***, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

MPEP § 2131 (emphasis added).

The Office Action alleges that Fuglevand discloses an oxygen concentration sensor positioned proximate the fuel cell stack, relying on col. 6, lines 7-12 of Fuglevand. However, the cited passage is directed to an air temperature control assembly and does *not* mention or suggest an oxygen concentration sensor. After review of the entire Fuglevand reference, there does not appear to be any teaching or suggestion of any oxygen sensor.

The Office Action alleges that Fuglevand discloses a fuel cell stack voltage sensor coupled across the fuel cell stack to measure a voltage across the fuel cell stack, relying on col. 9, lines 35-41 of Fuglevand. However, the cited passage makes clear that Fuglevand employs a voltage sensor to monitor voltages across *individual* respective fuel cells. (Also see Fuglevand, col. 9, lines 41-45, col. 10, lines 15-21, col. 11, lines 27-30 and col. 17, line 34-col. 18, line 25.)

The Office Action alleges that Fuglevand teaches a microcontroller coupled to the oxygen concentration sensor, the hydrogen concentration sensor, the stack temperature sensor, the fuel cell stack current sensor and the fuel cell stack voltage sensor to receive signals corresponding to an oxygen concentration reading of the oxygen concentration sensor, a hydrogen concentration reading of the hydrogen sensor, a temperature reading of the stack temperature sensor, a current reading of the current through the fuel cell stack and a voltage reading of the voltage across the fuel cell stack, relying on the passage at col. 10, lines 42-53. As noted above, Fuglevand fails to teach an oxygen concentration sensor, hence fails to teach providing an oxygen concentration reading to a microcontroller. It also appears that Fuglevand teaches reading voltages across *individual* fuel cells rather than reading across an *entire* fuel cell stack. Fuglevand, col. 9, lines 35-45, col. 10, lines 15-21, col. 11, lines 27-30 and col. 17, line 34-col. 18, line 25.

The Office Action also alleges that Fuglevand teaches that the microcontroller compares the oxygen concentration reading to an oxygen concentration value ... and the stack voltage reading to a stack voltage threshold on a predefined schedule during normal operation. Again, such a teaching appears to be completely absent from Fuglevand, let alone the cited passage which simply addresses the use of a plurality of microcontrollers.

The Office Action further alleges that Fuglevand teaches that the hydrogen sensor is positioned downstream from the fuel cell stack with respect to the flow of air from the air compressor, relying on claim 39. Assuming that the Office Action is interpreting the fuel sensors 64 of Fuglevand to be the hydrogen concentration sensor, it is noted that claim 39 does not teach or suggest a position of such sensor relative to air flow.

The Office Action alleges that Fuglevand teaches a fuel cell voltage checking sensor coupled to a number of pairs of fuel cells to measure a voltage across each pair of fuel cells, relying on the passage at col. 9, lines 35-40. As noted above, Fuglevand teaches that voltage is measure across *individual* fuel cells, not across *pairs* of fuel cells. Fuglevand, col. 9, lines 35-45, col. 10, lines 15-21, col. 11, lines 27-30 and col. 17, line 34-col. 18, line 25. Fuglevand does not appear to recognize or appreciate the advantages to measuring voltage across pairs of fuel cells rather than individual fuel cells.

The Office Action also alleges that Fuglevand teaches a purge cell voltage checking sensor coupled to a purge cell to measure a voltage across the purge cell, relying on claims 253 and 297. Claim 253 teaches a bleed valve configured to selectively purge matter from at least one fuel cell, while claim 297 teaches selectively bleeding a connection coupled with at least one fuel cell to purge matter from the fuel cell. Neither claim teaches a purge cell voltage checking sensor coupled to measure a voltage across a purge cell.

The Office Action alleges that Fuglevand teaches that the microprocessor is coupled to the purge cell voltage checking sensor to receive signals corresponding to purge cell voltage reading measured across the purge cell and to compare the purge cell voltage reading to an average fuel cell voltage based on the stack voltage reading, relying on a passage at col. 9, lines 35-40 and on claims 253, 297. However, the cited passage and claims do not support such. In fact, Fuglevand teaches purging periodically or based on factors such as electrical load, etc.

Fuglevand, col. 7, lines 9-13 and col. 18, 54-62. There is no suggestion in Fuglevand that purging be based on voltage measured across a purge cell or a comparison to an average voltage.

The Office Action relies on a passage at col. 9, lines 35-40 of Fuglevand as allegedly teaching that the microcontroller is coupled to receive a signal from the air flow sensor corresponding to air flow over the fuel cell stack. However, the cited passage is directed to a voltage sensor that monitors voltages of individual respective fuel cells. Airflow sensors are discussed at col. 6, lines 26-35 and 48-53 of Fuglevand.

The Office Action alleges that Fuglevand teaches a microcontroller configured to prevent a start up of the fuel cell system and to stop operation of the fuel cell system if the ambient air temperature proximate the fuel cell stack is below an air temperature threshold, relying on col. 13, lines 31-47. While the cited passage states that the microcontroller is responsive to a temperature sensor 55 and an external temperature sensor 59, the cited passage also makes clear that the controller is configured to *control the flow of air* into the housing responsive to temperature, rather than preventing start up or stopping operation of the fuel cell system. Other portions of Fuglevand reiterate such. Fuglevand, col. 6, lines 26-35 and 48-53, col. 13, lines 6-13 and 31-47. Fuglevand also teaches coupling a load to a power bus once an appropriate operational temperature within the plenum has been reached. Fuglevand, col. 7, lines 32-48. Fuglevand further teaches turning ON of a temperature modifying element in response to detection of a low temperature condition. Fuglevand, Fig 17. Such of course means that Fuglevand's fuel cell system operates in the low temperature condition.

Finally, the Office Action alleges that Fuglevand teaches a fuel pressure sensor coupled to a fuel delivery system to measure fuel pressure in at least one fuel tank, and the microcontroller being configured to prevent start up of the fuel cell system and to stop operation of the fuel cell system if the fuel pressure is below a fuel pressure threshold, relying on passages at col. 12, lines 64-67 and col. 13, lines 1-5 and claims 22 and 252. The cited passage at col. 12, lines 64-67 simply states that the fuel detection circuitry receives data from fuel sensors 58, 61. The cited passage at col. 13, lines 1-5 states that such information can indicate the concentration of fuel detected within the housing 12 or plenum 51 using fuel sensors 58, 61, respectively, and that a sensor slave controller can provide such information to a master controller. Such is

reiterated at col. 5, lines 26-35. Claims 22 and 252 each state that a fuel sensor is configured to monitor for the presence of fuel within the housing and that the control system is coupled with the fuel sensor and configured to implement a shut down operation responsive to a *detection of fuel within the housing*. Notably, none of the cited passages or claims are directed to measuring concentration of fuel in a *fuel tank*. Also, notably, the claims discuss shutting down operation if fuel is detected in the housing, in other words if a concentration of fuel in the housing is *greater than* some threshold (*e.g.*, zero). This is in contradistinction to shutting down operation if concentration of fuel in the fuel tank is *less than* some threshold as recited in the pending claims.

The legal standard for anticipation, *supra*, requires that Fuglevand either **explicitly** or **inherently** disclose each and every limitation of the rejected claims. Applicants respectfully submit that Fuglevand fails to explicitly or inherently disclose each and every limitation, as explained above. Therefore, Applicants respectfully request that the rejection of claims 1-9 be withdrawn.

Conclusion

Overall, the cited reference does not teach or suggest the claimed features of the embodiments recited in independent claim 1, and thus such claim is allowable. Because the remaining claims depend from allowable independent claim 1, and also because they include additional limitations, such claims are likewise allowable. If the undersigned attorney has overlooked a relevant teaching in any of the references, the Examiner is requested to point out specifically where such teaching may be found.

In light of the above amendments and remarks, Applicants respectfully submit that all pending claims are allowable. Applicants, therefore, respectfully request that the Examiner reconsider this application and timely allow all pending claims. Examiner Martin is encouraged to contact Mr. Abramonte by telephone to discuss the above and any other distinctions between the claims and the applied references, if desired. If the Examiner notes any informalities in the claims, she is encouraged to contact Mr. Abramonte by telephone to expediently correct such informalities.

Respectfully submitted,
SEED Intellectual Property Law Group PLLC

/Frank Abramonte/
Frank Abramonte
Registration No. 38,066

FXA:sc

701 Fifth Avenue, Suite 5400
Seattle, Washington 98104
Phone: (206) 622-4900
Fax: (206) 682-6031

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